

amendment is intended to be fully responsive to all points of rejection raised by the Examiner, and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

### **Specification**

The Applicants respectfully request to correct an error which they have discovered in the specification as originally filed. The **second** paragraph on page 7 of the specification describes the manner in which the optical signals transmitted to, and received from the tube connector, are interfaced with the electronic circuits shown in Fig. 4. However, an introductory sentence referring to Fig. 4 appears only at the beginning of the **fourth** paragraph at the bottom of page 7, line 26. The Applicants wish to amend the specification by the addition of a sentence referring to Fig. 4, at the beginning of line 7, prior to the first mention of the content of Fig. 4 in the second paragraph. The applicants respectfully submit that no new matter is added by this amendment.

### **Claim rejections - 35 USC § 102.**

Claims 1-4, 11-14, 21-24, and 31 stand rejected under 35 U.S.C. 102 (b) as being anticipated by Mir (U.S. Patent No. 4,374,397).

### **Claim rejections - 35 USC § 103**

Claims 10, 20 and 30 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Mir.

Claims 5-9, 15-19, 25-29 and 32-50 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over Mir in view of Nave et al (U.S. Patent No. 5,404,218).

It is respectfully submitted that the above-mentioned rejections are formally obviated by the cancellation of claims 1-50.

The Applicants furthermore respectfully submit that none of the new claims 51-137,

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which replace claims 1-50, are anticipated or rendered obvious by the prior art cited by the Examiner, as will be argued below.

The Applicants have replaced some of the claims, have made amendments to others, and have added yet others. In particular, all of the originally filed independent claims 1, 11, 21, 31 and 32 have been rewritten in order to more clearly point out and distinctly claim the subject matter which the applicants regard as their invention. Because of the multiplicity of claims, and the interrelation between them, the Applicants have preferred to rewrite the entire claim set, rather than to amend or cancel specific claims.

The relationship of the new set of claims 50-137, to the originally filed claims 1-50 is presented below, in order to facilitate comparison of the newly filed set of claims with those originally filed.

The independent claims are claims 51, 66, 81, 94, 109, 112 and 113.


Independent claim 51 recites "apparatus for analyzing fluid supplied to it through a tube, comprising ..... a light source and a light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

Support for this claim, with respect to its main differences from the originally filed claim 1, which it replaces, is to be found on page 3 of the specification, lines 12 - 15.

Independent claim 66 recites a "system for verifying the proper connection of a tube assembly to a fluid analyzing instrument, .....comprising a light source and a light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

Support for this claim, with respect to its main differences from the originally filed claim 11, which it replaces, is to be found on page 3 of the specification, lines 12 - 15.

Independent claim 81 is a new claim without an equivalent in originally filed claims



1-50, and recites a "system for verifying the class of a tube assembly connected to a fluid analyzer, ..... comprising a light source and a light receptor disposed such that when said tube assembly is of the correct class, and when said first connector is correctly mated with said second connector, optical identifying information may be transferred along a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

Support for this claim is to be found on page 3 of the specification, lines 12 - 23.

Independent claim 94 recites a "method for verifying the proper connection of a tube to a fluid analyzing instrument, ..... comprising the step of providing a light source and a light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face of said first connector and each of said light source and said light receptor."


Support for this claim, with respect to its main differences from the originally filed claim 21, which it replaces, is to be found on page 3 of the specification, lines 12 - 15.

Independent claim 109 is a new claim without an equivalent in originally filed claims 1-50, and recites a "method for verifying the class of a connection tube connected to a fluid analyzer, ..... comprising the step of providing a light source and a light receptor disposed such that when said tube assembly is of the correct class, optical identifying information may be transferred along a clear optical path between at least one common point on said end face and each of said light source and said light receptor."

Support for this claim is to be found on page 3 of the specification, lines 12 - 23.

Independent claim 112 is essentially equivalent to originally filed claim 31, but recites that "at least part of said end face is optically reflective" instead of that "said end face is formed to have essentially specular reflectivity over at least an annular portion thereof", as recited in originally filed claim 31.

Independent claim 113 is essentially equivalent to originally filed claim 32, but recites that "at least part of said end face comprises a material selected from a group consisting of optically fluorescent and phosphorescent materials" instead of that "said end face has a fluorescent or phosphorescent material over at least an annular portion thereof", as recited in



originally filed claim 32.

The claims dependent on the above-mentioned independent claims, correspond variously to combinations of the originally filed dependencies, and their origins are evident by comparison with the originally filed claims.

Referring now to the details of each of the prior art documents cited by the Examiner, Mir describes, to the best of the Applicants' understanding, a light valve device, wherein electronic addressing signals are used to control the passage of light to its intended location in an imaging/scanning system. To the best of the Applicants' understanding, and contrary to the Examiner's assertion, nowhere is there disclosed in the Mir Patent, apparatus for analyzing fluid supplied to it through a tube, or a system or a method for verifying the proper connection of a tube assembly to a fluid analyzing instrument, or the proper class of a tube assembly for connection to a fluid analyzing instrument, or the tube assembly itself, as recited in new independent claims 51, 66, 81, 94, 109, 112 and 113 respectively.

Nave et al describes, to the best of the Applicants' understanding, a fiber optical probe for use in analyzing samples by means of the light scattered therefrom. The Nave et al patent mentions the use of a fluorescent material as an indicator.

In contrast to what is shown in either the Mir or the Nave prior art cited by the Examiner:

Independent claim 51 recites "apparatus for analyzing fluid supplied to it through a tube, comprising ..... a light source and a light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

To the best of the Applicants' understanding, these features are not shown in any of the prior art of record.

Claim 52 depends from claim 51, and further recites that " .... at least part of said end face is optically reflective."

Claim 53 too depends from claim 51, and further recites that " ....at least part of said

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end face comprises a material selected from the group consisting of optically fluorescent or phosphorescent materials.”

Claim 54 too depends from claim 51, and further recites that “ ...said light source comprises an end of an optical fiber having a source of light coupled to its other end.

Claim 55 too depends from claim 51, and further recites that the “ ...said light receptor comprises an end of an optical fiber having an optical detector element coupled to its other end.”

Claim 56 too depends from claim 51, and further recites that the “..... light receptor comprises a detector element”

Claim 57 depends from claim 52, and further recites that “ ...said at least part of said end face is such that it includes said at least one common point, when said first connector is properly mated with said second connector in any angular orientation”.

Claim 58 too depends from claim 52, and further recites that “ ...said analyzing instrument is rendered operative only upon reception of an enabling signal, .....”

Claim 59 depends from claim 51, and further recites that “ ..... said light source emits light in an essentially narrow band of wavelengths” and also recites “ ...an optical filter, essentially transmissive to said band of wavelengths and disposed in said clear optical path.”

Claim 60 depends from claim 53, and further recites that “ ...at least part of said end face is such that it includes said at least one common point, when said first connector is properly mated with said second connector in any angular orientation.”


Claim 61 too depends from claim 53, and further recites that “...said light source emits light in a first band of wavelengths, such that stimulate said material to emit light in a second band of wavelengths, ...”.

Claim 62 depends from claim 61, and further recites that “ ....said material is one of a plurality of types, characterized in that said second band of wavelengths has a spectral profile essentially different among said plurality of types, .....”.

Claim 63 depends from claim 53, and further recites that “ ...said analyzing instrument is rendered operative only upon reception of an enabling signal, .....”.

Claim 64 depends from claim 63, and further recites that “ ...said light source emits light as a first train of pulses and said circuit further includes a synchronous detector that is fed with a multiplying signal formed as a second train of pulses, .....”

Claim 65 depends from claim 51, and further recites that “ ...said light source emits light in pulses.”



The Applicants submit that none of the combinations of features recited in each of the above dependent claims 52 to 65 are shown in any of the prior art of record.

Independent claim 66 recites a "system for verifying the proper connection of a tube assembly to a fluid analyzing instrument, .....comprising a light source and a light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

To the best of the Applicants' understanding, these features are not shown in any of the prior art of record.

Claims 67 to 80 are dependent ultimately from claim 66, and respectively recite similar limitations to those that were recited in claims 52 to 65.

The Applicants submit that none of the combinations of features recited in each of the dependent claims 67 to 80 are shown in any of the prior art of record.

Independent claim 81 recites a "system for verifying the class of a tube assembly connected to a fluid analyzer, ..... comprising a light source and a light receptor disposed such that when said tube assembly is of the correct class, and when said first connector is correctly mated with said second connector, optical identifying information may be transferred along a clear optical path between at least one common point on said end face and each of said light source and said light receptor".

To the best of the Applicants' understanding, these features are not shown in any of the prior art of record.

Claims 82 to 93 are dependent ultimately from claim 81, and respectively recite similar limitations to those that were recited in claims 52 to 65.

The Applicants submit that none of the combinations of features recited in each of the dependent claims 82 to 93 are shown in any of the prior art of record.

Independent claim 94 recites a "method for verifying the proper connection of a tube to a fluid analyzing instrument, ..... comprising the step of providing a light source and a



light receptor disposed such that when said first connector is correctly mated with said second connector, there is a clear optical path between at least one common point on said end face of said first connector and each of said light source and said light receptor.”

To the best of the Applicants’ understanding, these features are not shown in any of the prior art of record.

Claims 95 to 108 are dependent ultimately from claim 94, and respectively recite similar limitations to those that were recited in claims 52 to 65.

The Applicants submit that none of the combinations of features recited in each of the dependent claims 95 to 108 are shown in any of the prior art of record.

Independent claim 112 recites a “tube assembly for connection to a fluid analyzing instrument, comprising a connector having an end face, and wherein at least part of said end face is optically reflective.”

To the best of the Applicants’ understanding, these features are not shown in any of the prior art of record.

Independent claim 113 recites a “tube assembly for connection to a fluid analyzing instrument, comprising a connector having an end face, wherein at least part of said end face comprises a material selected from the group consisting of optically fluorescent or phosphorescent materials.”

To the best of the Applicants’ understanding, these features are not shown in any of the prior art of record.

Claim 114 depends from claim 112, and further recites that “...said part of said end face is formed with a reflective foil attached thereto.”

Claim 115 depends from claim 112, and further recites that “...said part of said end face is formed with a reflective material deposited thereon.”

Claim 116 depends from claim 112, and further recites that “...said part of said end face is formed with a reflective object bonded to said end face.”

Claim 117 depends from claim 112, and further recites that “...said part of said end face has spectrally selective sensitivity.”

Claim 118 depends from claim 112, and recites that the tube assembly further

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comprises “ ... an optical filter having spectrally selective transmission ... disposed over said at least part of said end face.”

Claim 119 depends from claim 113, and further recites that “ ...said material is any one of a plurality of types, characterized by different spectra of emission.”

Claim 120 depends from claim 113, and further recites that “ ....said material is deposited on said end face.”

Claim 121 depends from claim 113, and further recites that “ ... said material is on an object attached to said end face.”

Claim 122 depends from claim 113, and further recites that “ ... said material is imbedded in said end face.”

Claim 123 depends from claim 51, and further recites that “ ... said at least part of said end face has spectrally selective reflectivity.”

Claim 124 depends from claim 123, and further recites that “ ....said light source emits light in a narrow band of wavelengths”.

Claim 125 depends from claim 123, and further recites “ ... an optical filter having a spectrally selective transmission and disposed in said clear optical path between said common point and said light receptor.”

an optical filter having spectrally selective transmission and disposed over at least part of said end face.”

Claim 126 depends from claim 67, and further recites that “ ... said at least part of said end face has spectrally selective reflectivity.”

Claim 127 depends from claim 126, and further recites that “ ... said light source emits light in a narrow band of wavelengths.”

Claim 128 depends from claim 126, and further recites “ ... an optical filter having a spectrally selective transmission and disposed in said clear optical path between said common point and said light receptor.”

Claim 129 depends from claim 81, and further recites that “ ... said at least part of said end face has spectrally selective reflectivity.”

Claim 130 depends from claim 129, and further recites that “ ... said light source emits light in a narrow band of wavelengths.”

Claim 131 depends from claim 129, and further recites “ ... an optical filter having a spectrally selective transmission and disposed in said clear optical path between said common point and said light receptor.”



Claim 132 depends from claim 95, and further recites that "... said at least part of said end face is made to have spectrally selective reflectivity."

Claim 133 depends from claim 132, and further recites that "... said light source is made to emit light in a narrow band of wavelengths."

Claim 134 depends from claim 132, and further recites that "... the step of providing an optical filter having a spectrally selective transmission and disposing it in said clear optical path between said common point and said light receptor."

Claim 135 depends from claim 110, and further recites that "... said at least part of said end face is made to have spectrally selective reflectivity."


Claim 136 depends from claim 135, and further recites that "... said light source emits light in a narrow band of wavelengths."

Claim 137 depends from claim 135, and further recites that "... an optical filter having a spectrally selective transmission and disposed in said clear optical path between said common point and said light receptor."

The Applicants submit that none of the combinations of features recited in each of the dependent claims 114 to 137 are shown in any of the prior art of record.

The applicants therefore respectfully submit, in conclusion, that none of the new claims 51-137 are anticipated by the prior art of record, or rendered obvious by any combination of prior art of record, and that all of the claims are in condition for allowance. Reconsideration and prompt allowance of this application are therefore respectfully requested.

Respectfully submitted,



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September 27, 2000

